

# MEETING THE CHALLENGE OF POLLUTED WATER DIVING

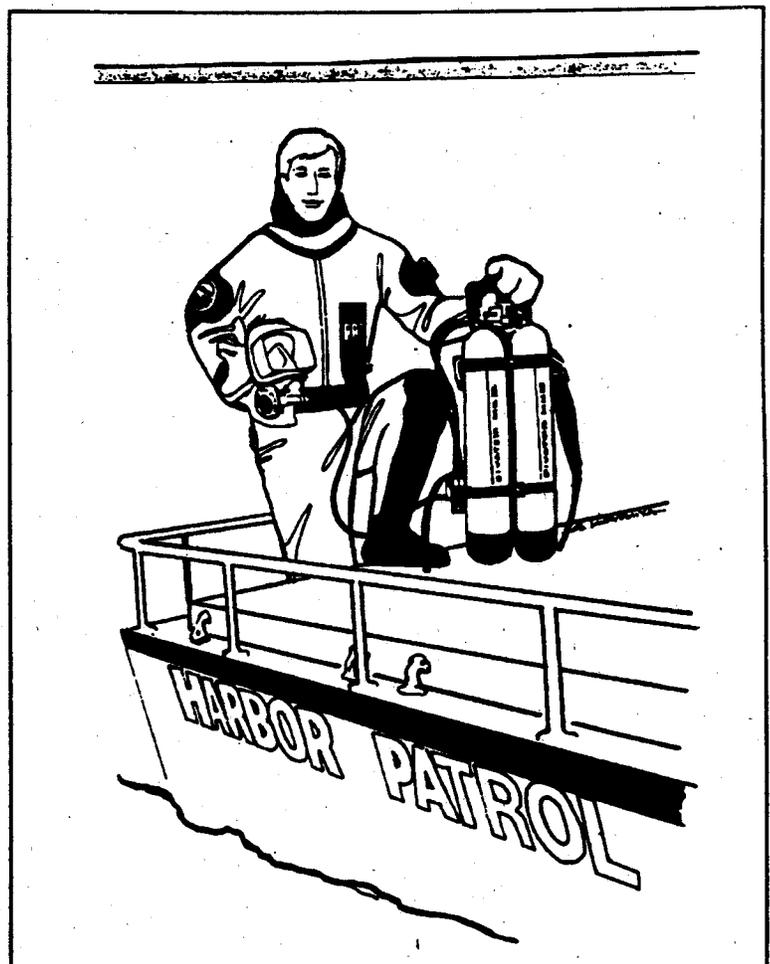
BY  
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Diving in polluted water may be the most hazardous type of diving done by dive rescue specialists today. The equipment is more technical and requires a higher level of expertise. In addition to the immediate hazards always present in any underwater operation, the long term health hazards may present risks which can lead to permanent disability, or death, months or years after the diving is over.

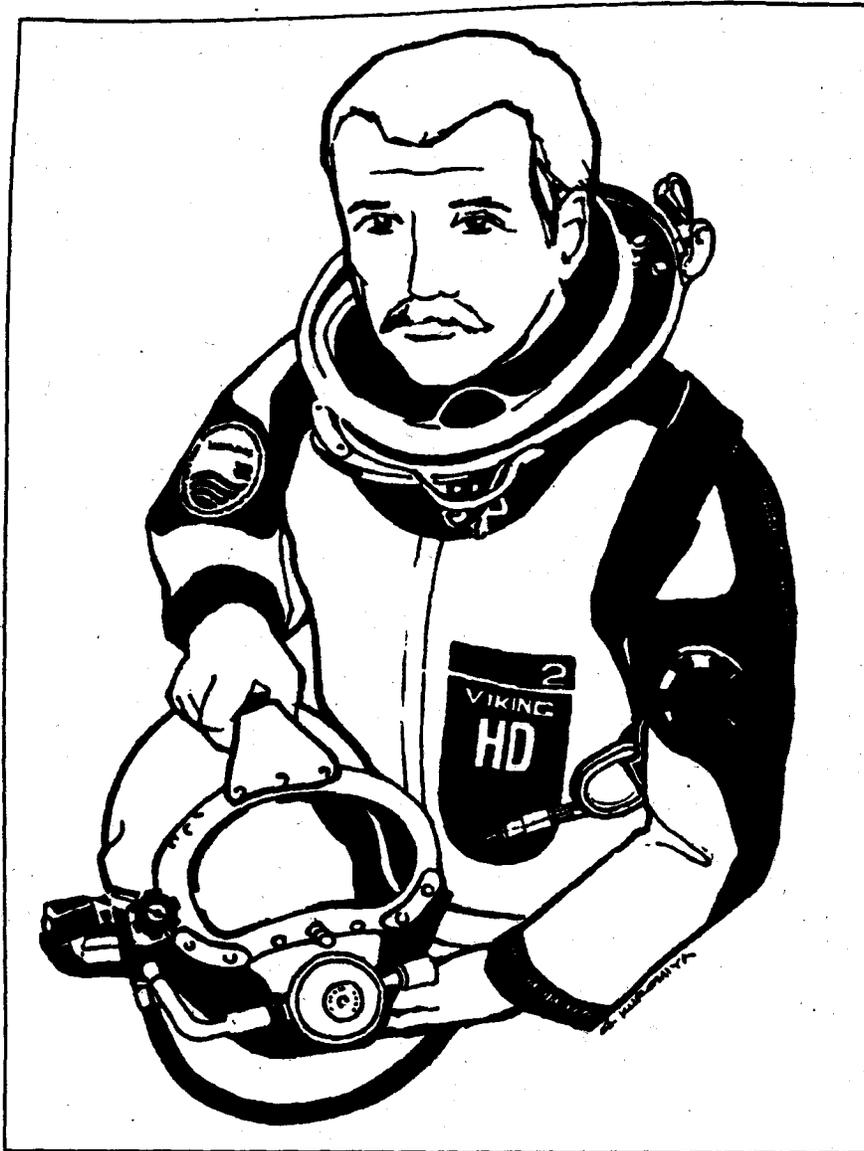
The cardinal rule in polluted water diving is, "Never dive when you are not 100% certain what contaminants are present in the water you are about to submerge in". It is important to recognize that certain chemicals present such a high hazard level that no conventional surface supplied or self contained diving gear will provide satisfactory protection. Also, certain chemicals which may pose relatively low threats by themselves may combine with other chemicals to create dangers which are unacceptable. Unless you are positive about the environment you are about to enter, you must not dive.

The second most important rule in this type of diving is to never dive without a properly equipped standby diver. The standby diver should be equipped with a diving system at least equal to what is

worn by the diver in the water. If surface supplied equipment is used, the standby diver's hose must be at least as long as the working diver's hose, if not longer, to ensure enough length to make a rescue. Ordinary



*A full face mask and dry suit are considered the minimum acceptable equipment for contaminated water diving.*



*Lightweight fiberglass diving helmets, like this SuperLite-17 are very popular for polluted water diving.*

wetsuits and scuba regulators do not constitute acceptable equipment for a standby diver during contaminated water diving operations.

Since most dive rescue teams dealing with polluted water are using vulcanized rubber dry suits with some form of full face mask or helmet, it is important to consider what types of pre-dive checks are necessary. Prior to every dive in contaminated water, the entire diving system must be

carefully inspected.

The suit itself should be thoroughly inspected for punctures or worn spots. If the suit is equipped with an exhaust valve this should also be checked to ensure the integrity of the diaphragm.

The rubber components of the diving helmet or full face mask must be inspected for tears or punctures as well. Particular attention should be given to the inhalation diaphragm and exhaust valves. If the helmet is

equipped with a double exhaust system, this should be disassembled and each exhaust valve in the series should be inspected prior to diving.

If a full face mask will be worn with a self-contained supply, the diver must not enter the water with anything less than a completely full diving cylinder. The regulator must be equipped with an accurately functioning submersible pressure gauge.

If it is a warm day, the skill of the topside tenders becomes very important. The diver must be dressed in quickly and efficiently, to avoid overheating. Some provision for shade should be available so the diver can dress in out of the sun. Of course, while speed in dressing the diver is important, care must be taken not to injure the diver or strain his neck, particularly when using a fiberglass diving helmet.

While the diving system is being set up, careful attention must be devoted to the decontamination procedures, too. Again, if it is a hot day, it may be necessary to rig some type of shade to keep the diver cool during the wash down.

Once the diver is completely dressed in, he should be completely submerged in a tank of clear, clean water and the entire diving system must be inspected for leaks. If there is the slightest doubt regarding the performance of the diving system the diver should be

taken out of the water and any deficiencies must be corrected.

During the dive, it is important for the topside console operator to monitor the diver for any signs of stress. Listen to the communicator carefully. If the diver's breathing rate increases dramatically he may either be working too hard or he may be too warm. Both situations are dangerous. If water temperatures are cool, but the diver is working hard, stop the diver and have him ventilate the helmet and catch his breath. If the water temperature is very warm, rapid breathing is a good indicator of hyperthermia. Have the diver ventilate both his suit and helmet (within the constraints of the topside air supply) and remove the diver from the water immediately.

During the decontamination process it is essential to carefully rinse out any water which may be trapped between the yoke on the suit and the base of the helmet. If the helmet is removed before this step is completed, any contaminants trapped in this rim will run down inside the suit or neck dam.

Contaminated water diving systems are not complicated to operate, but they do require some training. The diving techniques themselves are relatively simple, however, the greatest responsibility lies with the topside personnel, who must constantly be operating in the diver's interest. A mediocre diver may make a suc-

cessful contaminated water dive, but without a competent topside crew the entire operation may fail.

The Dive Rescue Dive-Poll course is an excellent introduction to contaminated water diving operations. Every dive rescue team member should complete this course to acquaint themselves with the risks involved in this type of operation. Dive Rescue can also provide complete training in contaminated water diving operations with any type of equipment. Without the right training and the right equipment, you may find yourself in a situation for which you are not prepared.

*For more information on polluted water diving, contact:*

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